

The ANTIQUE RADIO GAZETTE

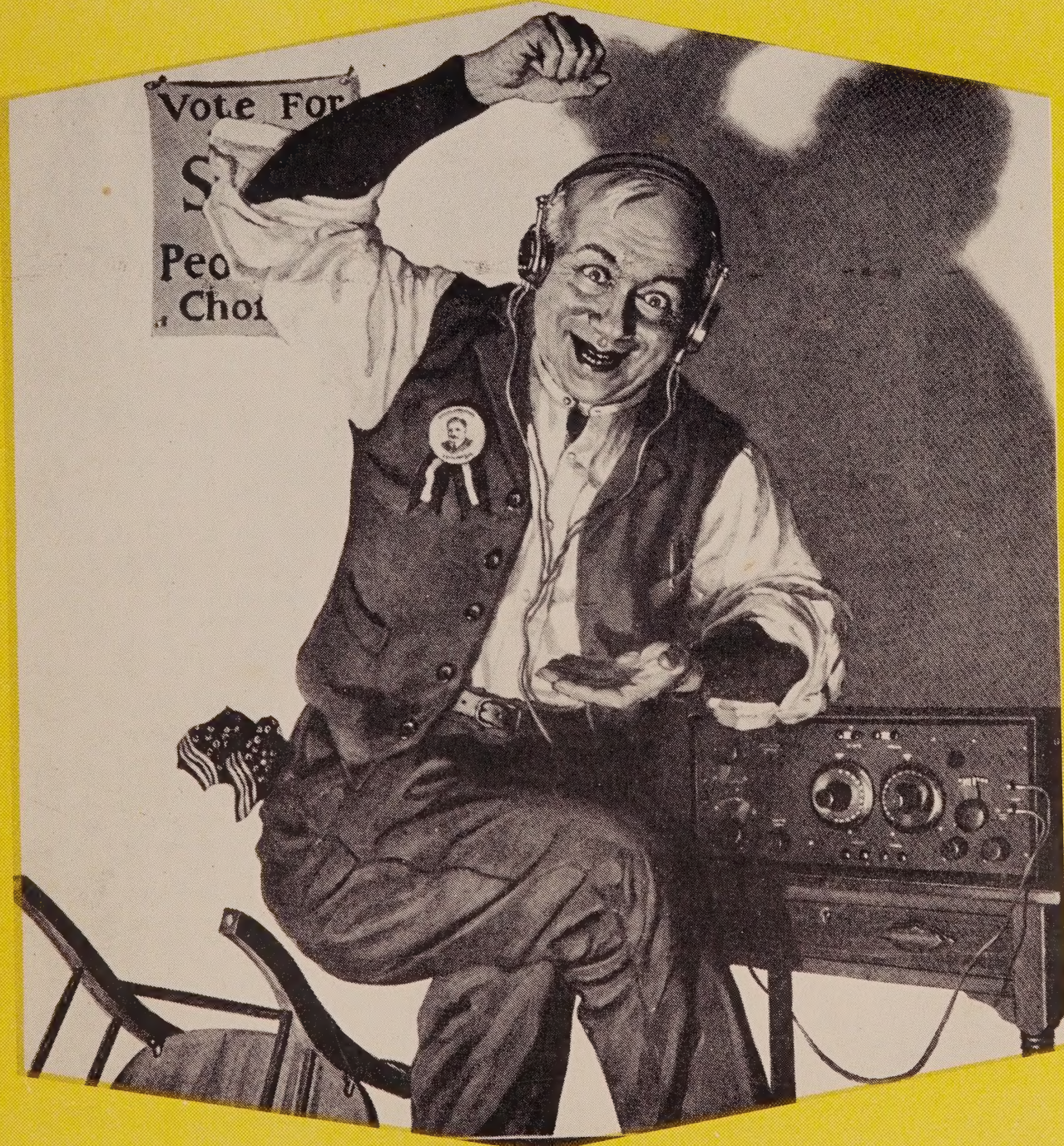


OFFICIAL
PUBLICATION OF
THE ANTIQUE
RADIO CLUB
OF AMERICA

VOL. 17

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NO. 1



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It is our intention to have the Gazette published as closely as possible to the following dates:

March 31
September 30

June 30
December 30

The closing dates for receiving material of all kinds in order to have it appear in the next issue would be:

February 15
August 15

May 15
November 15

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The Antique Radio club of America was incorporated in the State of Kentucky, in September, 1972. The first meeting was held at the Marriott Motor Inn, Washington D.C., on September 23, 1972. At this meeting, by-laws were read and approved and directors selected. We feel that the inception of this Club is a giant step in bringing together those individuals whose chief interest lies in the area of early radio. We invite all collectors and historians of the subject to join the club. A note to William E. Denk, Secretary, 81 Steeplechase Road, Devon, Pennsylvania 19333, will bring you an application blank by return mail.

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President's Page

Mystic, Connecticut---That's the big news from our Spring issue. We hope all of the enclosed information answers your questions and that all have made plans to attend what we believe will be another premier event!

On many occasions I have talked about the past meets with a number of you who have missed an ARCA convention. It is impossible to describe to others something they have never experienced first hand. The best way to know what you will miss, is just simply to attend and experience the great moments with us. Be there!!

As President Reagan retires, the one aspect of his eight (8) years that warms our hearts was his Saturday radio addresses. Radio is still a class act and we should all be proud of that fact.

We have just elected a new governor in West Virginia, and one of his first announcements was that he would deliver a major program announcement each Saturday via public radio. I would also mention that our new governor, Gaston Caperton, is a relative of John Caperton, ARCA's founding father. While on the subject of radio broadcasting, as many of you may know, we lost a friend and a very well-known broadcaster on January 10, 1989, Mr. Herbert Morrison. Much can be said of this fine gentleman, but I leave that to the man who says it best, Ray Formanek, Jr. A.P. We are proud of Mr. Morrison's compassion for his fellow man and the contributions he made to radio. His memory will live long.

As Spring approaches and we start out on the "Radio Collector's Trail", there is an area that may be of interest to some of you. The J.A. Moore Memorial

Library has obtained several sets of encyclopedias. These are an often overlooked source of radio history. Many of the sets copyrighted in the Thirties, because of the tremendous impact radio was having at that time, are full of pictures, documentations and circuit diagrams. I have seen sets with as many as 45-pages on radio alone. There are also historical references to all the famous inventors under the appropriate alphabetical listing. Many of these sets are discarded as outdated and too large to keep. I just recently purchased a complete set of Compton's Pictured Encyclopedia-18-volumes for \$10.00 - which I donated to the Library. Later editions in the Forties and up, cut their references to radio to just 2 or 3 pages. There must be at least 8 or 9 sets in the Library now and all combined give a very good overview of early radio history. Look for them, collect them and decide later if they are worth keeping. I think you will find they are!

Lloyd McIntyre

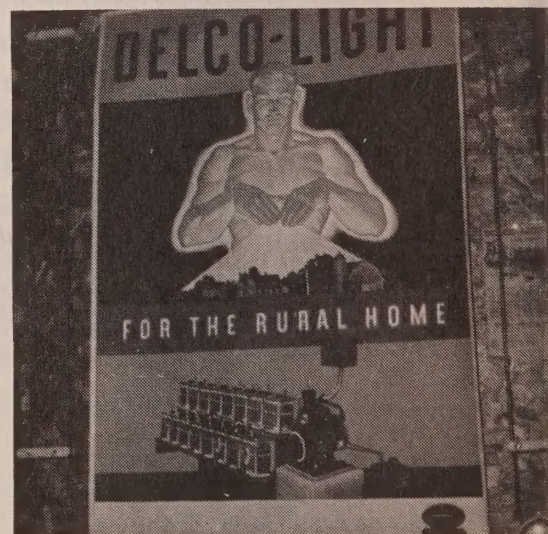
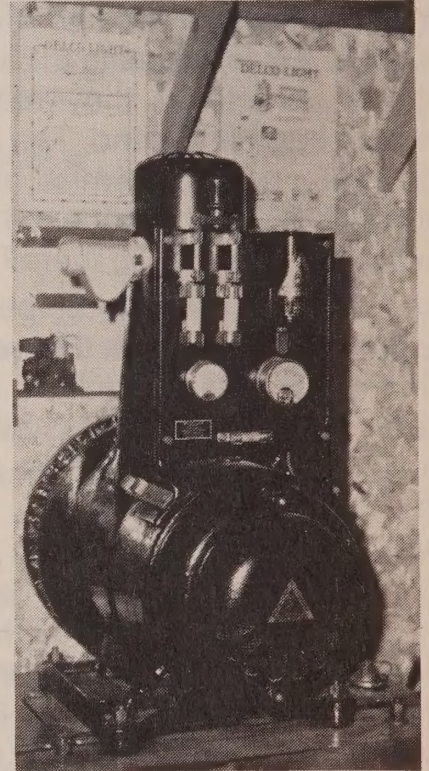


Electricity Comes to the Farm

By John and Vera T. Weyer

In the early years, farmsteads with electrical power were either adjacent to a city or they owned small generator plants that provided power for lights and radios. Some of the earliest generators were gasoline engine powered. The Domestic Engineering Company of Dayton, Ohio was formed February 11, 1916 by Charles F. Kettering and Edwards A. Deeds. Their famous Delco plant was a leader in furnishing power to many farmsteads. Young men fortunate to live on a farm with one of these plants had ample power for their radios and homemade Ham outfits. Many without light plants had to rely on a 6 volt storage batteries that could only be re-charged in the city. Some young men built wind machines with a Model "T" generator rewound with no. 19 magnet wire instead of the no. 13. A flat iron bar was welded to the gear on the generator to hold the hand-carved propellor. It was mounted so as to turn sideways as the wind increased to control speed. The Albers brothers in Sioux City, Iowa developed the Wind-charger with its centrifugal type air brake governor. They also made a 32 volt Winchargers. These assisted the Delco-type plants in keeping the batteries charged. Larger batteries helped in periods of low wind activity. On extended calm periods, the light plants had to run. Many radio manufacturers, when you bought a set, furnished a discount coupon for the purchase of a Wincharger. Some Hams in the rural areas, with their homebuilt wind generators and a washing machine engine coupled to a 500 volt D.C. generator, got on the air. One such was W9BTW in Sperry, Iowa. In the early 30's, all electric vibrator type radios were available, but with the development of the number 48 tube, vibratorless sets

were possible. With only 32 volts on the plates, it gave the finest hum-free reception. Many other companys made 32 volt wind chargers; one was the Jacob Brothers at Minneapolis. After closing in the 60's, they are back in business building wind-driven alternators for wind farms. The Zenith Co., which purchased Wincharger, is making a 12 volt wind-driven alternator overseas.



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NEWS FROM CHARLESTON

Hello, my name is Zane Parsons and I will be writing the news from Charleston for a while.

Work is nearing completion of the expansion and remodeling at the Charleston club house. This will provide increased space for the J.E. Moore Memorial Library as well as improved display area for the club's radios, tubes and miscellaneous radio-related items.

Yours truly was assigned to clean and dust some of the tubes and tube cartons that will be in the new display. Now, when I was in the U.S. Army Signal Corps and attending radio repair school, the major fear was that of "washing out" and becoming a "tube duster". So, more than 35 years after completing the training, I have become a tube duster and its not bad work at all.

Lloyd reports that all who attended the Christmas party and dinner had a good time and each attending member received a 1989 radio calendar.

I have a small bell that advertises Demco Radios. It is imprinted: "Clear as a bell at midnight is the Demco radio". It was made in the city of Wheeling, West Virginia. Does anyone have knowledge of this company? The Wheeling Chamber of Commerce could not help with this.

Zane W. Parsons, Reporter

As of 2/15/89

the following Gazettes are sold out:

Vol. 1 no. 3 (xerox only)
Vol. 2 no. 4
Vol. 3 nos. 1, 2 & 4
Vol. 4 nos. 1 & 4
Vol. 5 nos. 2, 3 & 4
Vol. 7 nos. 1, 2 & 4
Vol. 8 no. 1
Vol. 9 no. 1

ANTIQUE RADIO SWAP & SELL MEET

The New England Radio Club will hold its Spring Swap & Sell Meet Sunday, April 23 at the Holiday Inn in Nashua, NH. Participating will be club members from throughout New England, New York and New Jersey with over 60 tables of antique and collectible radios, TV's and related items for sale or trade. Members and non-members alike are invited to attend and enjoy a day of fun and nostalgia. Special events will include radio contests and a silent auction. Swap Meet hours are 8 a.m. to 1 p.m. Early Buyer Admission will be \$5.00 from 8 a.m. to 9 a.m. while General Admission will be \$1.00 from 9 a.m. to 1 p.m. All proceeds to benefit the New England Radio Club.

To reach the Holiday Inn, take Route 3, Exit 4: **Traveling North** - Turn left at the light, cross over the bridge and take a right at the second light. Bear right to the Holiday Inn. **Traveling South** - Turn right at the light and right again at the second light. Bear right to the Holiday Inn.

For more information about the Swap Meet or membership in the New England Radio Club call or write: NERC, 422 Day Street, Manchester, NH 03104. (603) 623-8996

Dear John,

I just received the winter issue of ARCA Journal and saw that old ad for the CARTER Magmotor. I thought you

might want to know a little history on it.

The Magmotor was invented by American Bosch in the early thirties. I have the original factory model in my collection. It was made (in the DC model) to take the place of "B" batteries that the early auto radios used. The patent and Magmotor name was sold to Carter as the vibrators came into use.

Sincerely,
Robert H.L. Russell

Mr. Frederick Butterfield
RE: Article, p. 5, Vol. 16, No. 4,
Winter, 1988

Dear fellow collector:

The device you have is an electric fencer. It is used to keep livestock inside a fence that has a bare wire strung on posts, using insulators made of porcelain in early days, but now are plastic. The fencers were six volt battery-powered in the middle thirtys, but with the coming of farm electrification, many units were made to run off of A.C. power.

Best Wishes Happy Collecting
John Weyer

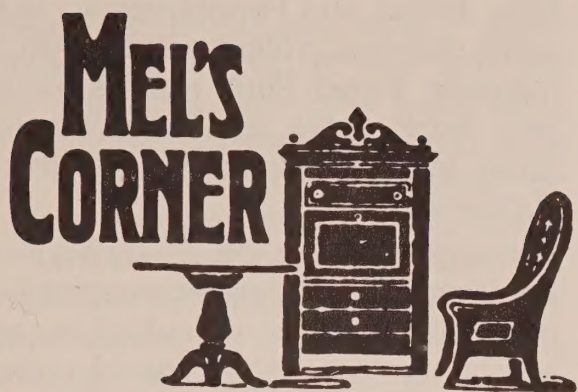
Silent Key

Frank A. Nichols - W9AKN of Appleton, Wisconsin.

Distinguished Navy WWII Veteran of Pearl Harbor days. Twice blown off Navy destroyers sunk there. Radio ship operator on the Great Lakes in the early days - using spark gear.

Avid collector of all early radio equipment - especially Electro-Importing Co. of New York, as well as others including Murdock - Clapp Eastham - Thor-darson - Chambers - Mesco etc.

His last Navy expression - Carry On!!



One of pleasures of this collecting of antique radios comes from the many friends you meet.

After swapping old radio gear for many years with Dr. Ralph Muchow, I never realized until recently that I was dealing with an International Hall of Fame character, who is a Pro in table tennis!! At a recent sportsman's show in Chicago, Ralph competed before a crowd of fifteen thousand spectators--the largest show of its kind ever held in the United States. A champion in that area, he is also well-known among our collectors as having a most outstanding collection of over three thousand antique radios! The meets at his yearly "Radio-Fest" for the collectors have drawn large crowds, coming from everywhere.

One of the outstanding benefactors of our ARCA organization has been Harry Houck of world fame in the electronics industry. During World War I, Harry Houck worked with Major Armstrong in the development of the superheterodyne circuits - a basic in the development and production of more modern radio equipment as we know it today. Here we meet an inventor holding more than a hundred patents.

Back in 1953, a group of amateur historians got together and decided to do something about the artifacts and the history of radio development. The outcome was the establishment of the

Antique Wireless Association at Holcomb, New York with Bruce Kelley there to get the show on the road! At first it was mainly correspondence as letter after letter came pouring in. Enough of this for Bruce--so in January 1960--out came the first Old Timers' Bulletin--No. 1 which has continued to the present times.

From that point on, one event led to another. The meetings grew from just a handful at first-gathering in Kelley's barn to see all the items that survived or were donated there.

The barn grew and grew!! Just a few at a time could climb up the stairs to see hundreds of items displayed there. It's just a wonder that the barn didn't collapse with all the activity and the continuous additions.

One of the benefits of Kelley's barn came to light when collectors started restoring equipment and couldn't find parts. It was then he established his famous trash pile! Nine chances to one--if you dug in there elbow-to-elbow--you most likely found that missing piece! All was for free--if you really needed that part!! Those were the days of early gear--try to find some of those parts these days!!!

The day finally arrived when Kelley found a local Museum which agreed to accept all this equipment on a limited basis. From then on it's a matter of history, as his museum has grown to its present stage of well-over twenty-five thousand items on display! Located at East Bloomfield, New York -- this has become one of the most outstanding electronic display Museums in the world. Items stem from their very beginnings--on up to the TV days. Admission free.

Again--speaking of the people you meet in this hobby of ours---where do you ever find such a congenial and friendly bunch? We meet old friends year after year--and many we know

only through correspondence. Today we find no end of local clubs that have been formed throughout the country. As generations move along--the interests in radio vary with the times. It seems that all one was accustomed to in the early days moves along with it. The early collectors assembled the items they actually used on the air then. The idea of collecting a living room console was far from their minds. Try to find or buy a good one these days???

With the advent of the 1930's and 1940's, old radios were simply tossed away in order to install more compact--better tone--up-to-date equipment. Then came the plastics of various styles and shapes--which have now hit the market with a boom!!! When you tossed out that old TV to the trash man---who would ever have thought the early ones would take a hold on collectors?? So--time marches on--we can't save everything--but we try?? It seems the trash of yesterday becomes the gold of tomorrow!!

The final words of an old Navy collector friend of mine, who passed away recently--Frank A. Nichols W9AKN--were--CARRY-ON!!! And this we do---

Cheerio

**LOS ANGELES RADIO
MANUFACTURING
THE FIRST TWENTY YEARS 1922-1942**

By Floyd A. Paul

*Published by Floyd A Paul
1545 Raymond Avenue
Glendale, CA 91201
Soft Cover \$10.50 plus S&H \$1.50*

Those of us who live in the eastern half of the United States tend to think of the early radio industry as concentrated largely in the northeast - in New York,

New Jersey and Pennsylvania - with some outposts in Illinois. But as ARCA member, Floyd Paul, reveals in his new book, there was a substantial radio industry located in southern California.

Although this 92-page, 5½ by 8½ inch book identifies fifty-nine concerns that did business in the manufacture, assembly and/or distribution of radios during the 1929-1931 period alone, Floyd deals for the most part with twelve manufacturers, of which Gilfillan Bros., Inc., and Lee DeForest Mfg. Co., Ltd. are perhaps the best known country-wide. True, DeForest was primarily an eastern manufacturer (New York City and Jersey City), but he did, to this writer's surprise, produce two radios (a portable and a cathedral) in Los Angeles! The L.A. company survived for only six months, September 1930 to March 1931. The other major companies dealt with are Advance, Echophone, Horn, Jackson-Bell, Packard-Bell, Patterson, Pierson-DeLane, Powell, Sheldon and Troy.

This book is well illustrated, with pictures of products produced, personalities and plants involved, schematic diagrams, and reproductions of old advertisements. One such ad reveals that the Falck-27 cathedral model was "built for Western Reception by Advance Electric Company". Another illustration shows our author with set designer Fred Falck himself. One of the schematics is of the Gilfillan Reflex Kit No. RA-1, a two-tube receiver having one R.F. amplifier stage with tuned input and tuned output, a crystal detector, and a two-stage audio amplifier. Jackson-Bell's Model 6 (1930), a very neat table model with attractive tapestry grill cloth, is illustrated on page 32.

A five-page section on Troy Radio Manufacturing Co., notes that during the years 1930 to 1932 there were

some 52 firms assembling table model radios in the L.A. area, all of the TRF type! The majority of these were considered "bootleg" since they were not licensed by RCA, Hazeltine, or LaTour. Among these small, lesser known companies, not included in the twelve concerns dealt with at length, were American Laboratories, Inc., Arcadia, Channing, Colbliss, Hayden, Masterola, and Trinity.

A reading of this book confirms that the undersigned reviewer knew very little about radio manufacturing in our far west. For those who want to round out their knowledge of U.S. radio manufacturing, this little book is a bargain.

*Book Review By:
William E. Denk, W3IGU*

RADIO: AS I EXPERIENCED IT

Early Radio Experience

By Bill Hoy

With every new mechanical or electrical device there comes a need for repair and maintenance. It was no different with the first radios. The early battery-operated sets never reached sales of more than a few in any one area, never enough to support a shop for their repair. Radio service-shops were almost unknown until the introduction of AC-power operated radios. Any repairs needed were done by the neighborhood fix-it man, someone in the dealer's store, or the manufacturer. Most "repairs" were done by replacing parts haphazardly until the set worked again. This method is still used by some incompetent auto, and electronics shops. It served fairly well with the simple battery sets of those early years.

AC operated sets quickly changed all that. Early AC sets were, basically, the same as the battery sets they replaced,

except the detector sockets. Five-contact sockets were substituted for the four-contact sockets used in battery sets. This change was necessary because the new 227 tube, used as detector in AC sets, had five pins. Circuit wiring changed to that needed with AC tubes. Newer output stage tubes drew more current, so speakers were redesigned to withstand that added current. Those changes were about it. Test equipment owned then measured only direct current and voltages; this meant new equipment capable of measuring both AC and DC values must be purchased. That equipment was more costly, it used one meter for DC and another for AC measurements. Rectifier meters, such as are used today to measure AC and DC voltages, were not available then. AC power supplies delivered much higher voltages than batteries, voltages that could hurt or even kill. One could judge the voltage of batteries; voltages in AC sets required measurements be made carefully, using meters with at least five percent accuracy.

When AC radios went on sale, the public's response astounded manufacturers. Sales were so heavy that franchised dealers were unable to repair all those radios they had sold. People had sets, still under warranty, sitting silent because repairs were not available. Finding replacement parts became almost impossible. Sometimes, months went by before a part could be obtained. Because manufacturers were unable to meet sales demand, they were stuffing all the parts they could produce into new sets.

Many, including myself, decided to open radio repair shops. Our family home had nine large rooms. I had been permitted to use three of those rooms for years; it was no great problem to equip them as shop, plus storage area. Presto, an operating business. Hoy

Hoy Radio started out with the same tools used before, except a Jewell test-set equipped with separate AC and DC meters capable of accurately reading all voltages in AC sets, with ability to test tubes. Many new products were assembled on metal chassis, with parts riveted in place. We purchased our first drill to help remove parts in those sets.

Most people did not own an automobile then, so radio-servicemen made house-calls as doctors did. My first new automobile was purchased in December 1927. Since I was only seventeen years old, my father signed all contract papers. The rear seat would be removed, the plush upholstery covered, my new car used for work during the week, then put back as before for weekends with the girls. Oh! what I would have paid for one of the present day station-wagons. Speaking of doctors. . . Once, when I was carrying my little black leather test-kit to a customer's home, a lady came from a house I had passed and called, "Doc! please stop by on your way back, one of the children is ailing".

Custom building radios had given me valuable experience in meeting the public, in understanding the set-owner's explanation of his problem, but it did not prepare me to make adequate but fair charges for labor and travel costs. No allowance had been made for time lost in travel, and entering as well as leaving customers homes. That was an error of about two hours a day. Much money was lost before charges could be increased to levels needed.

My customer list soon held over one thousand names. To avoid any impression tubes or other parts had been advised just as one way of making a sale, rather than actually required to restore normal operation, nothing was offered for sale.

By the beginning of 1929 business

was very good; I had all the work I could complete on time. Parts were still hard to obtain. Each manufacturer had his own design for them, so they were not interchangeable. Carbon resistors were the only parts that were useable in all sets. They varied so far from the indicated value that I used only IRC METALLIZED units as soon as they were made available. Coded markings for parts values were still unheard of in the radio field. Parts values were printed on a paper wrapper, or stamped on the part itself. When a faulty part was found in a set, we would attempt to make repairs to the part. This was not good practice, but it was sometimes the only way to restore operation without a great delay. It was customary to charge the same price for repair of a part as that part would cost new. Money was lost on those repairs, but we continued to do them for good customer relations. I have no notion of the number of Atwater Kent RF transformers we repaired because of cold solder joints in the eyelet terminals, or how many of the wirewound resistors used in the RF grid circuits to prevent oscillation, were repaired, many, many, many. They, and cold solder cable lugs in the power supply, were the prime suspects in an A-K set failure. Crosley tuning capacitors, the same thing. Crosley used a well-built shielded tuning capacitor. It was too easy to remove the cover on the tuning capacitor, and the rotor blades were held in position by set-screws. You know the rest. When the radio failed, the owner would see the screws in the cover, remove the cover, see the screws in the capacitor, loosen them to see if adjusting the blades would help. Then take the set to the shop, where it took an hour to position the rotors correctly, using thickness gauges placed between the blades. Another part of your work you could depend on if the set had trimmers,

all of them would be snugly tight. These things happened so often I never mentioned them . . . charges for correction were added to the written estimate given to each customer. They were listed as "Alignment", and the customer told that was a standard operation required when parts were replaced. No one ever objected.

REFLECTIONS The Next Generation

By Joe Thielen

I will never forget that cold day in March three years ago! I was at an outdoor flea market in the Northeast. At one table was this 1934 RCA Tombstone. Something happened; I had to have this radio! It wasn't very appealing. The veneer was peeling, one knob was misssing and the dial lens was cracked. Still, I had to have it. So I gave the fellow the twelve dollars he asked for and picked up my new toy. It was just like Christmas as a young boy! It was great! Now, to try to convince my wife of this!

Well, after what semed to be about three days, we finally got home. I couldn't wait to get downstairs to my workshop and try out my new find. I took my time, though. I cleaned the chassis and put on a new line cord (my wife's extension cord for her bedroom clock) and plugged it in. A light came on, the tubes lit up, and I was listening to Benny Goodman, Bob Everly, and Helen O'Connell from a "Radio of the Stars" station. It was just wonderful! But it didn't last long. A tube faded out. I was just heart-broken. Where on a Sunday night could I get a tube 5Y3? Everything was closed. Nothing left to do but go to bed. Monday finally came and the stores opened. Three, four, five stores later, the TV stores had no tubes! What next?

Well, a repair man told me of a fellow who collected radios and might have a tube. I was amazed; someone else liked these things too? I called. He was very receptive and invited me over. I couldn't believe my eyes when I walked into his house. In front of me was a little old gentleman with his hand extended, and a smile on his face. He said, "Hi, my name is John Feuser, come on in!" It was beautiful! John had over 200 radios restored and on display! I was speechless! The smell of these beautiful old sets was wonderful. I knew right then and there I had to have a collection of my own.

Well, John did have a tube and was very helpful. He told me of many other collectors and even a radio club.

This was the start of something else. I began meeting more and more people who shared the same love. Only one problem, I started buying every radio I could find.! My wife wanted to disown me. Finally she said, "We have to talk. This has gone far enough. Why don't you pick just one kind of radio and collect that?"

After some thought, I decided, "OK, I'll pick A.K. (Atwater Kent). I mean they only made radios for a few years (1922-1925). How many could there be? One or two different radios every year? *Wrong!!*

Well, I started my search for these A.K.'s, which took all my spare time and included trips to a lot of junk shops and antique shops and about six different states. I would get to a shop and almost hold my breath as I walked in, always hoping. Is this my big find? Most of the time I would find a junker stuck back in some dark corner. Not an A.K. of course. But I would justify buying it by telling myself & my wife, "Good trading stock, honey." When the truth was I just couldn't leave them behind.

I would take my new finds home and

clean them up and make some calls. It seemed all the "old timers", as they like to be called, would say, "If it's not a battery set, it's not a radio", or "I've got this real nice A.K. for you, Joe, just find me a battery set. An old one-tuber would be nice".

Well, after all is said and done, my first love in this hobby of ours is still my 1930's & 40's AC sets. I think the first time I "fire them up", if you will excuse the expression, I am still just as amazed and thrilled as I was when as a boy I would turn on an old Philco 38-? floor model at home, and sit on the floor in front of the speaker and wait for "The Shadow" to come on and scare me to death. I mean, how great was that?

I think the best part of this hobby of ours is the collectors themselves; the wealth of knowledge each person has, whether it be about one particular type of radio or just an overall knowledge. I know if I have a problem, whatever it may be, I can always get together with someone who has the answer and is more than willing to help. Usually I turn to one particular friend. John never ceases to amaze me. I can work on a problem for hours and get nowhere fast. Finally, I call John and he will ask me, "Have you tried this? or, have you tried that"? And usually the answer is "No". "Well, you go and try them and it should work", he'd say. And they usually do. I like the fact that I am learning in spite of myself. But John has a way of getting his point across.

To date I have about 250 sets and the way the house is bulging out, I don't know how much longer I can keep stuffing them in. But I'll keep trying.

You know, maybe a warehouse isn't a bad idea!

SIGNALLING ACROSS SPACE WITHOUT WIRES

By Larry Babcock

A report on the work of Hertz from a book written by Dr. Oliver Lodge in 1906

In 1906 Oliver Lodge wrote a book which he chose to title "Signalling Across Space Without Wires". The first 42 pages of this book are the notes from a lecture given by Prof. Oliver Lodge, F.R.S. and tell of the brilliant accomplishments of Heinrich Rudolph Hertz. Hertz died on 1 January 1894 at the young age of 37. Nevertheless he made many discoveries that preserve his name in history.

Hertz most notable achievement was to prove the existence of electrical waves. This opened the way for their practical use in wireless telegraphy. He brought to fruition the work of earlier experimenters including Faraday, Thomson, Stokes, Weber, Helmholtz and in particular, Maxwell. Hertz showed that invisible electrical impulses could be generated by a transmitter (induction coil), travel through space and be detected by a spark gap (receiver).

In 1894 much of the equipment used for wireless communication including, of course, the vacuum tube, had not yet been invented. Still Hertz had an amazing knowledge of the theory of electrical waves. He knew that any conductor electrically charged or discharged with sufficient suddenness must emit electrical waves into the ether, because the charge given to it will not settle down instantly, but will surge back and forth several times first; and these electrical oscillations must, according to Maxwell's equations, start waves in the ether. It was known that at the middle of each swing the electrical signal generated electromagnetic waves and at the end of each swing, electrostatic waves were generated. The magnetic vector of the wave is

generated by the current in the conductor whereas the voltage potential on the conductor causes the electric field portion of the wave. If a wire is nearby, it was known that the electrical signal could run along it and be measured at a long distance from the source. If no wire existed, it was known that the electrical wave would spread out like sound from a bell or light from a spark. It was even known that the intensity of this wave would decrease according to the inverse square of the distance from the source. The inverse square law of propagation was known in 1894!

That is an amazing amount to have been known at this early time but they knew even more. They knew the velocity at which these waves traveled. They knew that they traveled slower in glass or water than air. They knew that they would curl around sharp edges (knife edge diffraction), that they would be partly absorbed but mainly reflected by conductors. They knew that if these waves were turned back on themselves, they would produce stationary waves (standing waves) or interference, or nodes and loops. In 1894 they knew how to calculate the length of these waves and even how to produce them at any wave length from 1,000 miles to a foot! Other things were also known; any homogeneous insulator would transmit them, would refract or concentrate them if it were of suitable shape (as an electro magnetic lens), would reflect none of a particular mode of vibration at a certain angle and more. They even knew about the difference between the near and far field effect, that true radiation of electrical energy did not begin until about a quarter wave-length from the source and within that distance the 90° angle between magnetic and electric vectors of the wave does not apply.

Much of this had not been experimen-

tally verified until Hertz began. That he was able to do this with the crude equipment available at the time is truly amazing. Some of the methods he used to do this are summarized in the following paragraphs:

Stntonc Leyden Jar Experiment

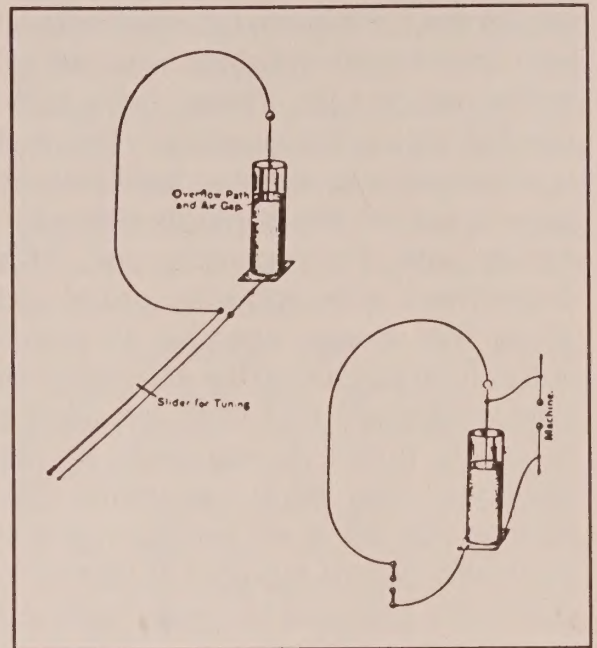


Fig. 1 Stntonc Leyden Jars

A Leyden jar is nothing more than a glass jar with coatings of tinfoil covering both the inner and outer surfaces of the glass. The foil extends about half way up the jar and acts like the two plates of a condenser with the glass being the insulation (dielectric). A conductor extends from above the center of the jar to the bottom and contacts the inner foil layer. A small sphere is attached to the top of this conductor. Two such jars were required for the experiment as shown in Fig. 1. The two ends of a wire loop about a yard in diameter were attached across the plates of each Leyden jar so as to form a tuned circuit with the single turn wire loop acting as the coil and the Leyden jar the condenser. One of these tuned circuits was charged via a machine as shown on the figure. As the voltage increased, a level was eventually reached where a discharge was created across the two.

small spheres shown at the bottom of the figure. At the time of discharge a rapid change in current occurs in the wire coil. This circuit thereby becomes the transmitter for the experiment. The other circuit was the receiver. It was placed about 6 feet from the transmitter. As the transmitter jar was charged and discharged, surgings were set up in the second jar. These were sufficient to "cause it to overflow". That is, it was possible to observe faint electric sparks across the contacts placed in series with the receiving coil. This experiment although very crude did show that it was possible to signal without wires. During the experiment it was necessary that both circuits be precisely tuned (syntonized). It was observed after each transmitter discharge that 30 or 40 swings (cycles) occurred before significant damping occurred. This was correctly believed to be because the closed circuit was a feeble radiator. It did not propagate the electrical oscillation energy rapidly. It was determined that this was because the condenser plates were close together and that the primary radiation was the magnetic field. It was necessary to separate the two condenser plates to a greater distance for more efficient radiation.

Imagine the intuition required to determine the above facts which we now know were correct. It was especially amazing since the experimenters were working in a very foreign field of science with very crude equipment.

Hertz Radiator

It was even known that there were near field and far field effects and that the syntonized Leyden jar experiment was probably carried out completely within the near field and not with a separation of over $\frac{1}{4}$ wave length where true radiation occurs. It was known that for optimum radiation the electrostatic and magnetic energies should be equal, whereas in the Fig. 1

circuit magnetic effects predominated.

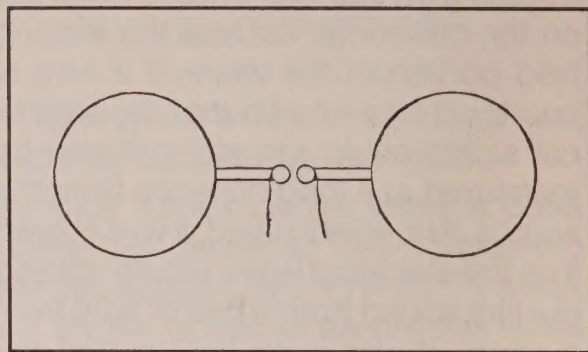


Fig. 2 Hertz Radiator

The Hertz Vibrator or Radiator shown in Fig. 2 has the same schematic as the Syntonized Leyden Jars but separates the two plates of the condenser as far apart as possible. It was known that the voltage gradient across the dielectric creates the electrostatic field and that therefore separating the condenser plates greatly increases propagation of the electric vector of the wave. The Hertz vibrator was a much more powerful radiator. It was observed that because of this the vibrations were readily damped and that it only gave three or four good swings (before most of the energy was transferred into the propagating medium). They understood that it therefore had a wide range of excitation - it could excite sparks in conductors barely in tune with it. Hertz summed it up thusly: "The two conditions, conspicuous energy of radiation and persistent vibration electrically produced, are at present incompatible. Whenever these two conditions coexist, considerable power or activity will, of course, be necessary in the source of energy. At present they only coexist in the sun and other stars, in the electric arc, and in furnaces".

I interpret this to mean that Hertz thought that his radiator could not oscillate or ring indefinitely while propagating a lot of electrical energy into the air unless it was driven by a large source of electrical energy. This is of course still true today.

All of the preceding information was contained in just the first seven pages of Prof. Oliver's book written in 1906. All of the section of the book dealing with the notes of a lecture delivered by Dr. Lodge before the Royal Institution of Great Britain in June of 1894. The information herein precedes the date of 1894.

Hertz Receiver

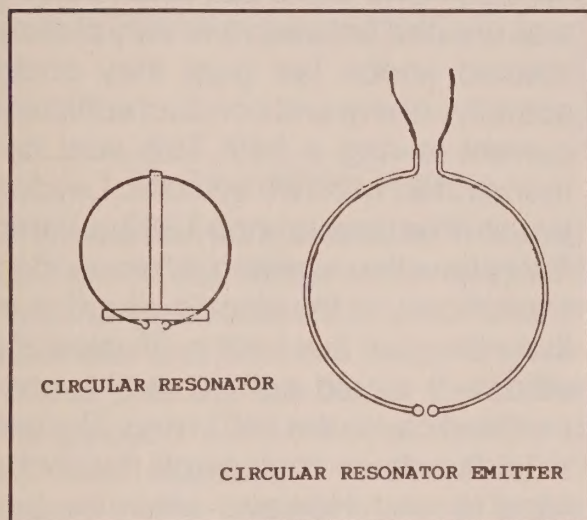


Fig. 3 Circular Resonator/Emitter

The receiver Hertz used was a circular resonator as shown in Fig. 3. You may recognize it as the AWA logo. Dr. Lodge described it to be not a good absorber but a persistent vibrator. It was therefore well suited for picking up disturbances of precise and measurable wave-length. When excited by an emitter tuned to the same frequency the receiver was found to continue to resonate long after the emitter had ceased to be driven. This was compared to the action of a tuning fork which could also continue to resonate long after being struck.

Hertz often performed experiments using the Hertz radiator as the transmitter and his circular resonator as the receiver. The transmitter was often called the Dumb-bell because of its shape. (Fig. 2) It was known to be heavily damped. This meant it was able to respond to a wide range of frequencies and also that when activated

the electrical energy was propagated quickly. The book has actual oscillogram of this showing that the amplitude decreases by a factor of 5:1 in just a very few cycles. The transmitted wave shape was determined by use of an electroscope held near the transmitter arc. A corresponding oscillogram was made of the circular resonator. It showed the received electrical energy in the coil built up to a peak in a few cycles and continued to oscillate without attenuation for many cycles (over 15) long after the transmitter was no longer emitting.

Hertz discovered that his circular resonator could also be used as the emitter. When this was done precise tuning of both units was necessary. Then the receiver would spark in sympathy (resonate) each time that the transmitter was activated. Hertz plotted oscillograms showing that this effect, sparking in the receiver, continued long after the source of electrical power had been removed from the transmitter. The concept of propagation was Hertz's discovery. He called it "Electric Syntony". An elderly dictionary describes syntony as follows: "State of being adjusted to a certain wavelength; agreement of tuning between the time period of an apparatus emitting electrical oscillations and that of a receiving apparatus."

After determining that radio waves could be propagated and received, Hertz used his discovery to verify what had already been predicted by others before him. He ascertained that the previously calculated length of the waves was correct. Dr. Lodge believed that these experiments by Hertz to validate the theory were his greatest achievement. To quote Lodge, "Hertz worked out every detail of the theory splendidly, separately analyzing the electric and the magnetic oscillation, using language not always as we

should use now, (1894) but himself growing in theoretic insight through the medium of what would have been to most physicists a confusing maze of troublesome facts, and disentangling all their main relations most harmoniously."

During these tests while observing sparks from the primary or exciting gap and the secondary or excited one, Hertz observed that the secondary spark (receiver) occurred more easily when the light from the primary spark fell upon the knobs of the receiver spark gap. He determined that not only spark light and electric brush light were effective but also any source of light rich in ultra-violet rays produced the same result.

Others later determined that it was the cathode knob of the gap on which illumination causes this effect.

Large Hertz Vibrator

Hertz demonstrated a large vibrator or radiator of his design. It was made of four large copper sheets (two for each side) connected to the central gap with No. 0 copper rod. It was suspended in the theatre by thin rope. It produced waves 30 meters long radiating, while it lasts, 100 H.P. (about 70,000 watts!) at a frequency of 10 Mhz. Because of its great radiating power it damps down very rapidly so that it only makes two or three swings (cycles). Nevertheless each time it was excited sparks were drawn from most of the reasonably elongated conductors in the theatre and even from wire fencing and iron roofs outside the building! It was discovered that a gas-leak could be ignited by these induced sparks. Incandescent lamp leads would arc across and blow the circuit fuses. This happened frequently in the demonstration until the wire guides of the theatre lamps were replaced.

Detectors

In about 1890 M. Branly found that a burnished coat of porphyrised copper spread on glass or ebonite changed resistance enormously from millions to hundreds of ohms when exposed to electrical sparks. He found that a tube of metallic filings behaved similarly and that both recovered their original resistance on shaking or tapping. Later in 1889 Hertz found that when a spark was created between two very closely spaced knobs (air gap) they could actually cohere and conduct sufficient current to ring a bell! This was demonstrated with two syntonized Leyden jars and the double knob 1889 coherer. Every time the receiving jar responded syntonically to the electric vibration of the other jar the knobs (if carefully adjusted) would cohere (make contact) and cause the bell to ring. The bell would continue ringing until the knobs were tapped. However when the bell was mounted on the same table with the knobs of the receiver air gap, the first stroke would tap the knobs back so that every discharge of the sending jar caused a single stroke of the bell to occur. This was said to be syntonography. For any response the jars and their circuits required very accurate tuning and adjustment. Then a key depressed to activate the emitter resulted in the ringing of a bell activated by the receiver. This very definitely was signalling across space without wires!

During an early experiment made at a range of forty yards it was found that the observer at the receiver could not shout to his assistant to press the key to activate the transmitter. The vibration of his voice upset the action of the coherer! It was necessary to signal silently by waving a duster. At 40 yards range the exciting spark could be distinctly heard at the receiver and the observer was able to see the light

before the sound arrived. This proved that sound waves had nothing to do with the phenomenon. Later tests were performed between two towers separated by a half mile.

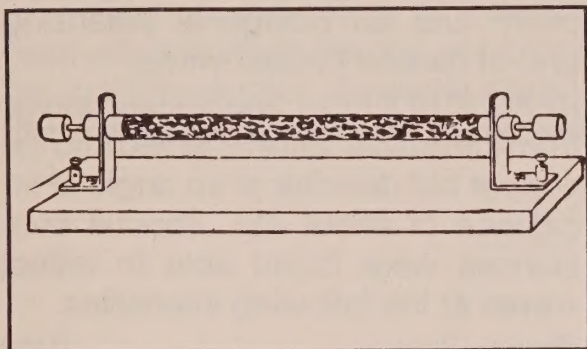


Fig. 4 Iron Filings Coherer

A typical iron filings detector is shown in Fig. 4. The filings were enclosed within a glass tube about a half inch in diameter and 8 inches long. An occasional shaking was found to “do the filings good”. This detector was found to have resistance of about 2,500 ohms in the original state. A feeble stimulus from a distant spark brought it down to 2,100 ohms. A stronger one reduced it by 500 or 600 ohms while a small spark at the receiver itself dropped the resistance to 1,100 ohms.

Another detector principle used a needle lightly resting against a watch spring with a screw adjustment to change the gap between the needle point and the spring. This was connected in series with a battery and a telephone receiver. It was said that this receiver required no tapping back and was very sensitive. Every disturbance of the coherer could be heard as a tick or crackle in the telephone receiver.

Hertz made the interesting observation that a bad electrical contact was at one time regarded as a simple nuisance. Hughes observed its sensitivity to sound-wave and it became the microphone. Then it was found to be sensitive to electrical waves if made of any oxidisable metal. Since it appeared to act by cohesion, Hertz

called it a coherer. He observed that perhaps some of the erratic effects of a bad contact were caused by the fact that it was replying to stray electric radiation! (Do you think this still might really be right?)

RECEIVER IN METALLIC ENCLOSURE

Hertz observed that when a receiver was completely enclosed in a metal box electric waves could not reach it. The metal box attenuated the waves. If only the coherer was enclosed it could still function because the external circuit picked up the signal and carried it into the metal box. When the receiver circuit was shielded, no electrical waves were received. It was known that the box had to be very well closed for the shielding to be perfect. Clamping a copper lid on to a flange in six places was not enough. Pads (gaskets) of tin-foil and tight clamping were able to make the inside of the box electrically dark. It was observed that Hertz waves (electric field) were attenuated by the box described but that the slow moving magnetic field had no difficulty in penetrating the box. It was believed that only a perfect conductor could shield the magnetic field. The need for a metal with high permeability to attenuate the magnetic field was apparently not yet known.

A lot of the facts of electromagnetic shields were known before 1894. If even an inch long conductor from the test circuit protruded from the shielded box, much shield attenuation was lost and if a mere single wire passed from the box, not connected to anything on either end, the waves would run blithely in. If this same wire however had been connected to the box at the point of entry, the box attenuation was maintained. When a circuit wire was run between two shielded boxes, it was known that this wire had to be

encased in a metal tube and this tube well connected with the metal of both enclosures. Another observation of Hertz was how little radiation passed through a small **round** hole. A narrow long slot in the shield let in a lot of radiation. A round hole (of the same area) the size of a shilling let in hardly any energy unless a bit of insulating wire protrudes through it.

OPTICAL EXPERIMENTS

Dr. Lodge concluded his 1894 lecture about the genius, Hertz, by a few amazing demonstrations of the optical effects of electromagnetic waves known at this early date. His experimental apparatus is shown in Fig. 5. To the right on the smaller table is shown the emitter or transmitting device. It had a graduated series of apertures on a disc to attenuate the transmitted waves to the desired amplitude. The transmitter was placed outside the demonstration theatre. Near the center of the larger table is shown the copper "hat" containing the coherer detector. The base end of the hat remained unshielded (open) for the entry of the waves. It acted as a directional receiving antenna. The hat was connected to the rectangular metal box on the left by a shielded cable.

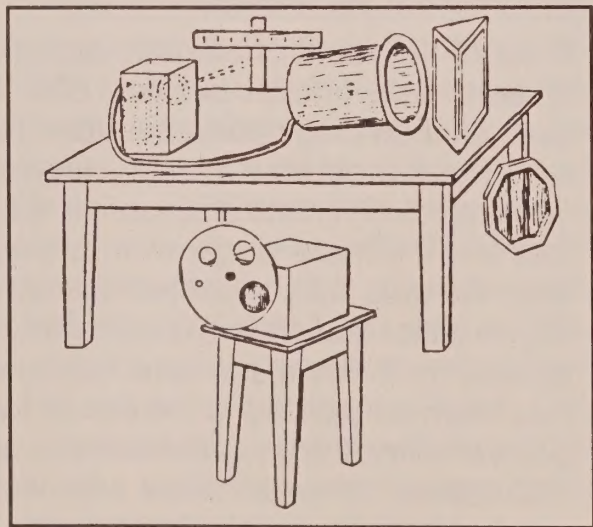


Fig. 5 Hertz Experimental Apparatus

This box contained the battery and galvanometer coil. A lamp directed a beam of light on the scale to indicate reception of a signal. Also on the right of the larger table is seen a paraffin prism and an octagonal polarizing grid of parallel copper wires.

REFLECTION: Electromagnetic waves from the emitter were reflected into the copper hat detector at an angle of incidence of about 45°. Various substances were found able to reflect waves at the following intensities.

Window Glass	0 (nil)
Human body	7 units
Wet Towel	12 units
Tea-paper (lead?)	40 units
Dutch metal paper	70 units
Tinfoil	80 units
Sheet copper	100 (off scale)

REFRACTION: A block of paraffin about a cubic foot in volume was cast into the shape of a prism with 75°, 60° and 45° angles. It was demonstrated that with this prism in place between the emitter and copper hat receiver a much stronger signal could be received than with the prism removed. A 9" glass lens was also tested and found to increase the received signal strength by concentrating the electric radiation.

POLARIZATION: These experiments were said to be easy because radiation from a sphere or cylinder or dumb-bell is strongly polarized. An 18" octagonal frame with a harp of parallel copper wires demonstrated the effect. A single grid was found to reduce the signal by about one-half. Two crossed grids reduced it to almost nothing. A third grid restored some signal. The effect was maximum with two parallel grids. It was known that the electric (field) vibrations which get through the grids are at right angles to the wires and that vibrations parallel to the wires were reflected or absorbed.

For a final demonstration the paraffin prism was used as a reflector. When the line of grid harp wires is parallel to the plane of incidence, the electric vibrations were perpendicular to the plane of incidence and plenty of radiation was reflected. When the grid was turned so that the electric vibrations were in the plane of incidence, practically no-

thing was reflected from the paraffin. From this he determined that the vibrations contemplated by Fresnel were the electric vibrations; those dealt with by McCullagh were the magnetic field! To summarize, Lodge said, "Thus are some of the surmises of genius verified and made obvious to the wayfar- ing man."

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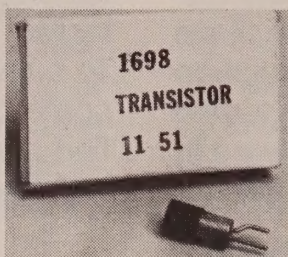
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TRANSISTOR TOPICS

By ROSS SMITH



With the coming of small transistor sets in the mid-1950's, the novelty business expanded very rapidly into every conceivable form from toy animals to toilet paper holders. It has become very popular with product advertizers, mostly in the form of look-alike products such as Coke and Pepsi bottles. Have you seen an automobile battery radio lately?

Many radios are only available with mail-in coupons and proof of purchase, such as the recent Welch's Grape Juice can AM-FM with a rod antenna coming out of the top of the can. Many companies have made commemorative novelty sets for employees only. These will bring higher prices and be difficult to find.

A few years back, I entered a beautiful newly-restored Radiola 26 portable in a local contest, fully expecting to place

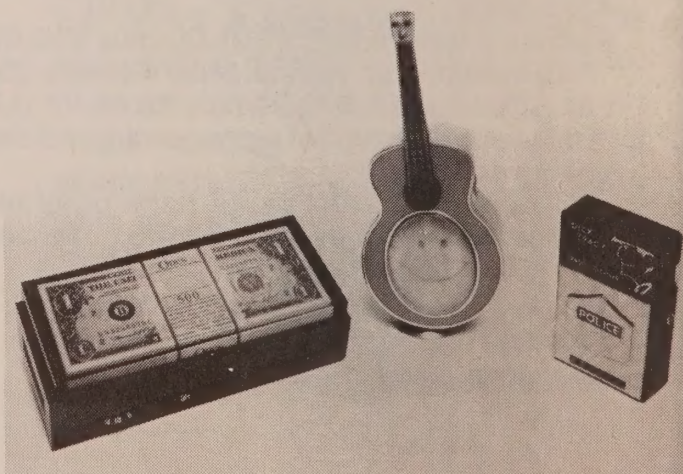
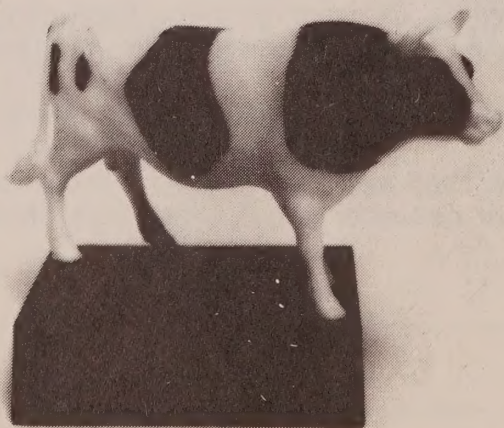
or win the blue ribbon of the day. My wife entered a Coke Bottle transistor set in the novelty class and won a blue ribbon. Needless to say, the Radiola took nothing! After that episode I gained more respect for novelty radios.

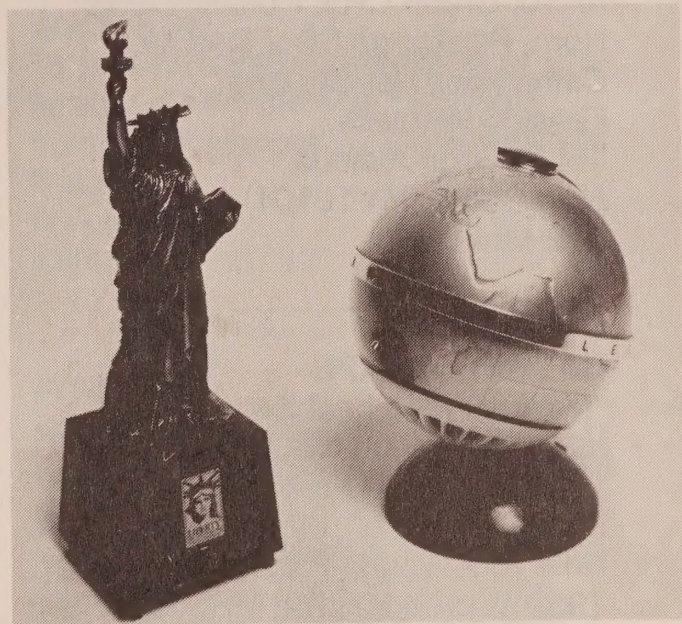
Many contests now include a judging category for novelty sets. National magazines and club bulletins are carrying more articles on them and many of our state and national club members enjoy collecting novelty radios. Will the novelty collectors organize their own club? Only time will tell.

Write and tell us about your favorite novelty set. Better yet, send us a black and white picture for future publication.

Mail To: Ross Smith
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Pictures courtesy CTS-Turner Museum, by Joe Carlson. Dollar bill , Telegraph set, RADIO and Dick Tracy sets courtesy of Serge Krauss.





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Eustis, FL 32726
904-589-0149

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One Superior Ele. Co. Powerstat Variable Autotransformer type 236Bu, Input 240/120V, Freq. 50/60, output 0-280V, amps 10 electrically and mechanically OK with dial. Sell for \$80. plus shipping.

Paul Nevatt

1114 S. Stewart

Springfield, MO 65804

417-862-1797

WANTED:

Wireless set #19 equipment circa WWII. Especially looking for power amplifier and pocketwatch.

Chris Bisailion VE3CBK

RR #1, Old Carp Road

Kanata Ontario Canada K2K 1X7

WANTED:

Schematic and service info. for Tele-Tone TL-208 and FADA 899 model televisions. Also need 4 DUD tipped WD11 tubes.

Jim Corio
P.O. Box 233,
Blawenburg, NJ 08504
(609) 466-0395

WANTED:

Good working speaker for Atwater Kent Model 20. Also need two RF tubes, two AF tubes, one ¼ ampere detector tube and a battery eliminator, also for a Model 20.

John J. Breen
20 Coburn Road
Manchester, CT 06040

SALE:

Have an early Philco 49-905-AM-FM receiver. Nice shape—make reasonable offer for same.

Roger Cox
1411 Medford Road
Wynnewood, PA 19096

SERVICE:

Philco retiree with many years experience now available for working over antique radios. Loads of parts and data on hand for repairs and restorations.

Ken Kieter
106 Boulder Road
Plymouth Meeting, PA 19462
215-828-2027

WANTED:

Diamond "T" radio, dead horns, fixer upper sets, parts for Bremer-Tully Counterphase, Thorola. Will Trade repairs or?

Jim Barratt, 26313 SeLeonard Rd.
Camas, Wash. 98607

SALE:

Radio manuals and catalogue reprints of various manufacturers - Now available. Atwater Kent — DeForest — RCA-Wireless Specialty and many others. Contact me for latest lists.

Arthur Aseltine
345 Glenwood St.
Ann Arbor, Mich. 48103

BUY — SELL

Old T.V.'s — many in stock — but always looking for more!
Especially the rare ones. What's available out there??

Harry Poster
P.O. Box 1883
So. Halk, NJ 07606

WANTED:

Scott & McMurdo complete sets, chassis, cabinet, and literature.

TRADE:

Scott Chippendale Grande cabinet, for smaller Scott cabinet.

Mike Greene
19113 Alpenglow Lane
Brookeville, MD 20833
301-774-3203 anytime

WANTED:

Early original AK breadboards with coupled-circuit or type II tuners. These can be basket cases with missing or damaged parts, but with a nice board. Pay \$35 for AK variometers with original front panel and dial.

Jerald Hueber
1368 King Richard Pkwy
W. Carrollton, OH 45449
513-866-6958

Selecting the Proper Vacuum Tube

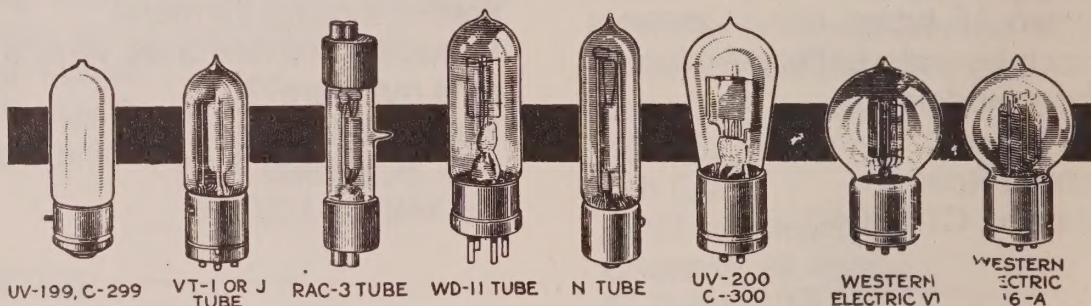
By F. L. BRITTIN

THE amateur is often at a loss to determine the proper type of vacuum tube to purchase for a definite purpose. The tube-data chart accompanying this article will prove of assistance to those who have encountered this difficulty. It gives the characteristics of the types most commonly used, and specifies how they act as detectors, amplifiers or oscillators. If a tube is not suitable for a particular purpose, the corresponding space in the table is simply marked with a dash. Thus, UV-200 tubes are indicated as being good

while they work well as detectors, are not quite so good when used as amplifiers. The UV-199, C-299 and N tubes are considered by the author as the best of the dry-cell tube family.

For use as detectors, with a storage battery, the UV-200 and C-300 tubes are recommended, and the UV-201A and C-301A as amplifiers. Where extra amplification is desired, as in large halls or auditoriums, the VT-2 or 216A tubes should be used.

A careful study of the table will well repay the amateur. Most novices buy tubes



TUBES	A FILAMENT VOLTS	FILAMENT CURRENT	FILAMENT WATTS	B PLATE VOLTAGE		C NEGATIVE GRID VOLTAGE FOR AMP.	DETECTOR	FREQUENCY AMPLIFIERS		POWER AMPLIFIER	OSCILLAT	OSTAT IMENDED
				DET.	AMP.			RADIO	AUDIO			
C-299 UV-199	3.0	0.06	0.18	45	60 TO 90	1 TO 4.5	GOOD	GOOD	GOOD	FAIR	-----	
UV-200 C-300	5.0	1.00	5.0	22 1/2	-----	-----	GOOD	-----	-----	-----	-----	(VERNI 6 1/2 -OHM.
UV-201-A UC-301-A	5.0	0.25	1.0	45	60 TO 100	3 TO 6	GOOD	GOOD	GOOD	GOOD	GOOD	25 -OHM
UC-302 UV-202	8.0	2.35	18.8	40 TO 60	100 TO 500	3 TO 9	FAIR	-----	GOOD	GOOD	GOOD	6 3/4 -OHM
WE'N TUBE	1.1	0.25	0.27	22 1/2	45	1 TO 2	GOOD	GOOD	FAIR	-----	GOOD	6 -OHM
WD-11 WD-12	1.5	0.25	0.37	22 1/2	45 TO 60	1 TO 3	GOOD	GOOD	FAIR	-----	GOOD	6 -OHM
VT-1 J TUBE	2.5	0.9	0.36	22 1/2	45 TO 90	1 TO 3	GOOD	-----	GOOD	FAIR	GOOD	(VERNIER TYPE) 6 TO 15 -OHM
VT-2 E TUBE	7.0	1.35	9.45	45	45 TO 350	1 TO 40	GOOD	-----	GOOD	GOOD	GOOD	6 -OHM
216-A	6.0	1.35	8.1	45	45 TO 150	1 TO 12	GOOD	-----	GOOD	GOOD	GOOD	6 -OHM
RAC-3	4.0	0.8	3.2	22 1/2	40 TO 90	1 TO 10	GOOD	GOOD	GOOD	-----	GOOD	6 OHM

Table of Characteristics of the Most Commonly Used Vacuum Tubes, Which Will Assist the Amateur in Selecting the Proper Tube for a Particular Purpose, or to Suit Storage Battery or Dry Cells

detectors, but unsuitable for amplifiers or oscillators. The remainder of the table is self-explanatory. It might also be mentioned, however, that a negative grid voltage is only necessary when a tube is used as an amplifier. Where the B-battery voltage exceeds 60, it is well to use a C-battery, to insure a negative potential on the grids of the amplifying tubes.

All the 6-volt tubes require a storage A-battery. The 1 1/2, 2 1/2 and 3-volt tubes, and the N tube can be operated on dry cells. The dry-cell tubes are about 75 per cent as efficient as the 6-volt tubes, and,

more or less at random, with the result that, while their sets may be well assembled and wired, they do not give as satisfactory results as they should.



ANTIQUE RADIO CLUB OF AMERICA
1989 CONVENTION
June 1-3, 1989

ARCA-89

WITH HOSTS

Greater Boston Antique Radio Collectors
Greater New York Vintage Wireless Association
The New England Museum of Wireless & Steam
The Voice of the Twenties Museum

TO BE HELD AT THE

RAMADA INN

Exit 90 (Route 27) North off of Interstate-95
P.O. Box 427, Mystic, Connecticut 06355
(203) 536-4281

*Mention ARCA-89 for Special Rates
Non-Members invited to attend!*

WELCOME!

TO THE ANTIQUE RADIO CLUB OF AMERICA 1989 CONFERENCE – ARCA-89!

A packed, three-day conference is planned for ARCA-89 this year! As well as the always popular flea market, a well qualified group of speakers is on the schedule. Trips to two extensive museum collections are planned: Bob Merriam's New England Museum of Wireless and Steam on Thursday and Ralph William's Voice of the Twenties Museum on Saturday (the 90-minute ferry ride to Long Island is an exciting trip in itself). The Old Equipment Contest, the banquet and the auction round out the "old-radio" activities.

Yes, ARCA-89 is an old radio convention, but I hope that you will make time to get to the many attractions in and around Mystic. At Mystic Seaport and the Aquarium you could spend your time just having fun, or plan a serious visit to learn about late-1800 seaport activities and marine life. Nearby are outlet, gift and craft shops, the U.S.C.G. Academy, the U.S.S. Nautilus and more! Ride the ARCA shuttle van to many of these.

See you there and have a great time in Mystic at ARCA-89!

John V. Terrey, Chairman

Thursday - June 1, 1989

Sunup to Sundown Flea Market

8:00 am - 8:00 pm (Lobby) Registration

9:00 - noon (Mystic/Clipper Room) Old Equipment

Contest Registration

Only entries before 11:00 am are eligible for People's Choice Award

11:00 - noon (Morgan Room) Zenith and its "Commander"

Alan Douglas

Author of "Radio Manufacturers of the 1920's"

Coffee & Danish courtesy of Antique Radio Classified, Carlisle, MA

noon - 4:00 pm (Mystic/Clipper Room) Contest Room Open

People's Choice Balloting

1:00 - 2:00 pm (Morgan Room) The 1904 Massie Wireless

Telegraph System

Robert Merriam – Curator, The New England

Museum of Wireless & Steam

† 2:00 and 2:30 pm (Lobby) ... Leave for New England Museum

of Wireless & Steam

35-minute trip to Bob Merriam's New England Museum of Wireless &

Steam in East Greenwich, R.I. The museum is spread over 4 build-

ings and includes an original 1908 wireless station, radio equipment

from spark to WWII, and large and small operating steam engines.

† 2:45 and 3:15 pm Arrive at Museum of Wireless & Steam

† 4:30 and 5:45 pm Leave for Ramada

† 5:15 and 6:30 pm Return to Ramada

7:00 - 9:00 pm (Mystic/Clipper Room) Contest Room Open

People's Choice Balloting

8:00 - 9:00 pm ARCA Board of Directors Meeting

† Check at registration desk for any last-minute schedule changes.

Friday - June 2, 1989

- Sunup to Sundown Flea Market
8:00 am - 6:00 pm (Lobby) Registration
8:30 - 9:30 am (Mystic/Clipper Room) Final Old Equipment
Contest Registration
9:30 - 10:30 am Contest room closed for judging
10:30 - 11:30 am (Morgan Room) Ultimate Communication
Receivers of the 1930's
Ray Moore – Author of "Communications Receivers"
Coffee & Danish courtesy of Antique Electronic Supply, Tempe, AZ
10:30 - 4:00 pm (Mystic/Clipper Room) Contest Room Open
1:00 - 2:00 pm (Morgan Room) The Story of a Museum
Ralph Williams – Curator,
The Voice of the Twenties Museum
2:00 - 3:00 pm (Morgan Room) Restoration & Collecting Tips
Richard Foster – Translator, Restoration and Preservation
of Scientific Apparatus
Bring a restoration idea, tip or project to share.
3:00 - 3:45 pm (Morgan Room) ARCA Membership Meeting
4:00 - 5:00 pm (Mystic/Clipper Room) Retrieve Contest Entries
(No entries removed before 4 pm)
6:00 - 6:30 pm (Morgan/Conrad Room) Social "Hour"
6:30 - 8:30 pm (Morgan/Conrad Room) Banquet
9:00 - 11:00 pm (Mystic/Clipper Room) Auction pre-check-in

Saturday - June 3, 1989

- Sunup – till the last diehard leaves Flea Market
Flea Market will be closed during the Auction
8:00 - 9:00 am (Lobby) Registration
7:00 - 8:30 am (Mystic/Clipper Room) Auction Check-in
8:30 - 11:00 am (Morgan/Mystic/Clipper Room) Auction
Begins at 8:30 sharp. Pickup of purchases to begin 30 minutes
after auction ends, followed immediately by payoff to sellers.
Sellers also may request their payment mailed or may pick it up
after returning from the Voice of the 20's Museum trip. A 10%
commission will be collected by ARCA on all sales. Rules and
other information will be available at auction time.
†11:15 am and 12:15 pm (Lobby) Leave for Voice of the
20's Museum
90-minute ferry ride to Long Island to Ralph Williams' Voice of the
20's Museum. Picnic lunch will be available. Museum contains
300 sets, including 150 Atwater Kents: "breadboards (a wall full!) -
boxes - bathtubs - cathedrals - tombstones - consoles."
†1:30 and 2:30 pm Arrive at Voice of the 20's Museum
†5:00 and 6:00 pm Leave for Ramada
†7:30 and 8:30 pm Return to Ramada
† Check at registration desk for last-minute schedule changes.

OLD EQUIPMENT CONTEST CATEGORIES

1. Crystal or Coherer Receivers 1906-1927.
 - a. Factory Made
 - b. Homemade or Kit
2. Regenerative Receivers.
3. Superheterodyne Receivers.
 - a. Battery Powered
 - b. AC Powered
4. Receivers with RF Amplifiers.
5. Radio Advertising
Magazines, Signs, Store Displays, Photos, etc.
6. Speakers (horn & cone)
 - a. Original "Plain Jane" Models
 - b. Exotic Models
7. All American Fives (AC-DC Table Models)
 - a. Wood Cabinets
 - b. Bright Phenolics (Bakelite/Catalin, etc.)
 - c. Other Art Deco (Metal/Mirror/Glass, etc.)
8. New England Manufactured Receivers
9. New York State Manufactured Receivers
10. Rare Books on Early Communications
11. Television – Pre-1960
12. Transistor Radios – 1950's

OLD EQUIPMENT CONTEST GUIDELINES

All persons registered for the conference are invited to visit the Old Equipment Contest exhibit. For security reasons, your conference badge must be shown when entering the contest room.

Entry of equipment in the contest is open only to members of ARCA. Entry times are 9 am to noon on Thursday and 8:30 - 9:30 am on Friday only. Contest entries may not be picked up before 4 pm on Friday. Judging is done on the basis of historical significance/rarity, completeness/as-original condition, preparation of the entry and documentation.

OLD EQUIPMENT CONTEST AWARDS

"THE PEOPLE'S CHOICE" is a special award presented for the display voted best by the public.

"BEST OF SHOW" is presented for the display having special historical significance or for the most comprehensive and documented entry.

"SPECIAL AWARD" is presented for an entry or entries that may have an outstanding characteristic that may not fit any of the established categories.

The *"HARRY HOUCK AWARD"* is presented for the best display of Superheterodyne Receivers, both battery and A.C. powered. Documentation is very important for this award.

"FIRST – SECOND – THIRD" place ribbons are presented in all categories.

ARCA SPECIAL AWARDS

"J. A. MOORE EDITORIAL AWARD" is presented to the writer who has contributed the best article or series of articles to the ARCA Gazette during the previous calendar year. This award is sponsored by the West Virginia Chapter of ARCA.



Mystic Seaport is ...

the nation's largest indoor/outdoor maritime museum and home of the National Historical Landmark and last wooden whaling vessel – the *Charles W. Morgan*. Our tall ships, 19th century homes and trade buildings, and exhibit galleries are situated on 17 scenic, riverfront acres in beautiful Mystic, Connecticut. A partial list of our offerings includes: lively demonstrations, working craftsmen, preservation shipyard, costumed role-players, knowledgeable exhibit interpreters, seasonal steamboat rides, audio-visual show, planetarium show, educational programs, and more.

Plan a 1/2-hour trip on the steamboat *Sabino* during the day or a 90-minute excursion down the Mystic River at night.



(About 1 mile from the Ramada)

Mystic Marinelife Aquarium is ...

home to over 6000 marine animals displayed in 48 exhibits. The center pool holds 350,000 gallons of water, is 20 feet deep and is surrounded by a 1500 seat Marine Theater featuring hourly marine mammal demonstrations of dolphins, sea lions and whales. Other exhibits include Seal Island, water fowl exhibit, Coral Reef and an open sea exhibit featuring sharks.



(About 1/2 mile from the Ramada)

Olde Mistick Village is ...

a colonial-style shopping village. Its 22 acres of landscaped grounds, walks, parking lots and early American-style buildings hold specialty shops, a supermarket, a cinema, restaurants and a beauty shop. Also in the village is the Memory Lane Doll and Toy House Museum.

(About 1/2 mile from the Ramada)

M.F.O. Mystic Factory Outlets is ...

a collection of factory outlet stores: Dalton, L'eggs, Bali, Hair Unique, Hollywoods Furniture, Manhattan, Factory Handbag Store, Quoddy, Swank, Van Heusen, Aileen and Campus.

(About 1/2 mile from the Ramada)

Downtown Mystic is ...

a small historic town that is "Downtown" for both locals and visitors. It was first settled in 1654; the Mystic River is the focal point of the town. Mystic had as many as six shipyards in operation at one time. As well as shops and old houses and buildings, Mystic sports restaurants featuring seafood, Mexican food and a N.Y. style deli.

(About 2 miles from the Ramada)

Also a very short drive away are ...

Schooner cruises and tours, party boat fishing, shopping, restaurants, antique stores, art galleries, churches, golf, Ocean Beach and Amusement Park, Gillette Castle, vintage steam train rides, Griswold Museum, U.S.S. Nautilus, U.S. Coast Guard Academy, whale watching trips, Indian Bingo, Indian Museum, Operating Bascule Bridge, Arboretum, Thames Science Museum, Millstone Energy Center, hot air balloon rides, stock car racing, and more and more and more!

DISCLAIMER

Neither The Antique Radio Club of America, nor the clubs and organizations listed on the front of this pamphlet, will be responsible for personal injury, fire, theft, or any other loss of equipment which may occur during this conference. Make sure you and your equipment are insured.

This conference is a private function of the Antique Radio Club of America, Inc. (ARCA). All programs, program formats, contests, results of contests, auctions and all other features of this conference are the sole property of ARCA and may not be copied, disclosed, published or used in any way whatsoever without express written permission of ARCA by its executive officers.

TRANSPORTATION TO MYSTIC AND TO ARCA-89

BY CAR

Take Interstate I-95 to Exit 90 (Route 27) North at Mystic. The Ramada is on the north side of the Interstate at the Exit.

BY AIR

Fly into Providence, R.I., airport, 35 miles from Mystic, or Hartford, Conn., airport, about 70 miles from Mystic.

BY TRAIN

About five trains per day on the Northeast Corridor Service stop at Mystic, and the depot is only two miles from the Ramada. Travel time from Boston is about 1 1/2 hrs.; New York City, about 3 hrs.; Philadelphia, about 5 hrs.; Washington D.C., about 6 1/2 hours.

TRANSPORTATION AROUND MYSTIC DURING ARCA-89

TAKE THE ARCA SHUTTLE VAN – PICK UP A SCHEDULE!

Mystic and its many attractions, the Mystic Seaport, the Mystic Marinelife Aquarium, Olde Mistick Village, the outlet shops and downtown Mystic are only minutes from the Ramada. To make transportation easy, ARCA is running an *about-hourly* ARCA shuttle van around the loop of the popular attractions.

ADDRESSES, TELEPHONE NUMBERS AND OTHER INFORMATION

Convention Hotel

RAMADA INN, P.O. BOX 427, MYSTIC, CT 06355

At Exit 90 (Route 27) North from Interstate-95 – (203) 536-4281

(Note: the ARCA discount room rates are \$20.00 off the regular rates.)

ARCA Conference Headquarters (for pre-registration)

Lloyd McIntyre, 4204 Thorn Apple Lane

Charlestown, West Virginia 25313 – (304) 744-8082

Convention Chairman

John V. Terrey, 498 Cross St., Carlisle, MA 01741 – (508) 369-9770

Mystic Chamber of Commerce

At the R.R. Depot, Rt. 1, Box 143, Mystic, CT 06355 – (203) 572-9578

Call or write for the *Mystic Guide* (an almost-100 page booklet on the Mystic area) and the brochure listing shops, lodging, restaurants, etc.

Mystic Seaport Museum

Rt. 27, Mystic, CT 06355 – (203) 572-0711

Admission: ARCA-89 attendees will receive a discount coupon for admission to the Seaport. The discounted rates are Adult: \$10.50, Child: \$5.25.

Mystic Marinelife Aquarium

Coogan Ave., Mystic CT, 06355 – (203) 536-3323

Admission: Adult: \$4.50; Child: \$2.00

Cross Sound Ferry

P.O. Box 33, New London, CT 06320 – (516) 323-2525; (203) 443-5281

Note: This is the ferry from New London, Ct., to Orient Point, N.Y., for the trip to Ralph William's Voice of the Twenties Museum. We will take the ARCA shuttle van from the Ramada to the New London ferry terminal. We will ride the ferry as passengers (about \$11.00 round trip) and then ride in cars to Ralph's Museum (about 3 miles). If you want to take your car on the ferry, you must make your own arrangements; the 1988 rates were \$24.00 one way.

ARCA-89 CONFERENCE REGISTRATION

Mail before **MAY 20** to: **ARCA Conference Headquarters**

4204 Thorn Apple Lane, Charlestown, WV 25313

	No. Persons	Fee	Total
Registration, In Advance, before May 20	Family	\$5.00	
Registration, After May 20 or at door	Family	\$8.00	
Flea Market Seller's Card		\$5.00	
1989 ARCA Membership ☐ New ☐ Renewal		\$12.00	
Friday Awards Banquet (includes soup, salad, potato, vegetable, bev., rolls, dessert, grat. & tax)			
N.E. Turkey Dinner/ Dressing, Cranberry Sauce		\$15.00	
Roast Top Sirloin of Beef au jus		\$19.00	
Saturday Auction		\$4.00	
Make check out to ARCA and mail to above address			TOTAL:

Name _____

Address _____

Deposit (check) enclosed _____

ROOM RESERVATION REQUEST

Mail before **MAY 10** to: **RAMADA INN (ARCA-89)**

P.O. BOX 427 MYSTIC, CT 06355 203 (536-4281)

(Late reservations will be accepted on room availability basis only)

Special Discount Rates: Single:\$65 Two/Three/Four people:\$75

No. of People _____ King Size Bed _____ Twin Double Bed _____

Arrival Date _____ Departing _____

Check-in Time: 3:00 pm **Check-out Time: 12:00 noon**

Name _____

Address _____

Telephone Number _____

ONE NIGHT'S DEPOSIT OR A MAJOR CREDIT CARD NUMBER
WITH EXPIRATION DATE MUST ACCOMPANY THIS COUPON TO
HOLD EACH ROOM REQUESTED. THANK YOU!

Deposit by check enclosed _____

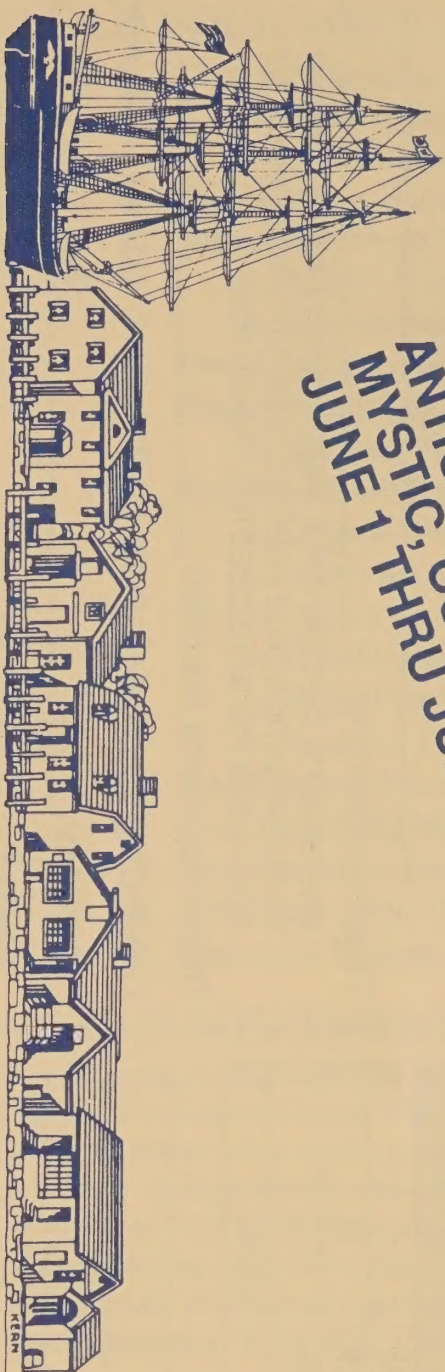
Credit Card Guarantee: ☐ AE ☐ VISA ☐ MC ☐ Diners ☐ Discovery

Card No. _____ Exp. Date _____

Signed _____

ARCA-89 c/o A.R.C.
P.O. Box 2, Carlisle, MA 01741
ADDRESS CORRECTION REQUESTED

SEE YOU AT
ARCA-89
CONFERENCE OF THE
THE 1989 RADIO CLUB
ANTIQUE CONNECTICUT
MYSTIC, THRU JUNE 3, 1989
JUNE 1



BULK RATE
U.S. POSTAGE Paid
Carlisle, MA
Permit No. 2

COLLECTOR'S BOOKS

Antique Radio Restoration & Price Guide	\$12.95
Seventy Years of Radio Tubes & Valves By John W. Stockes (SC)	19.95
Radio Enters The Home, 128 pgs. 8½ X 11	12.50
Radio Equipment & Supplies - 168 page reprint	12.50
1927 Radio Encyclopedia - Gernsback, 179 pgs.	11.95
Crosley Radio Catalog, circa 1923, 32 pages	4.50
Westinghouse Apparatus, circa 1920's, 8½ X 11	4.00
Short Wave Radio Manual, Official 1934, 260 pages	12.95
How To Repair Old-Time Radios.....	9.95
Vintage Radio Handbook, 263 pages, 1000 illus.	11.95
Flick Of The Switch 1930-1950, 312 pgs., 1000 illus., (HC)	11.95
Most Often Needed Diagrams 1926-1938, 600 models	11.95
1921-1932 Collector's Guide, 264 pg., 9,000 models	11.95
Atwater Kent Radio Parts Book, 24 pages, Model 9 plus 50 speakers	4.95
The William B. Duck Co. Catalog #18 (1921) - 256 Pgs.	18.95
Radio Collector's Directory & Price Guide, 321 Pages	15.95
Wireless & Electrical Encyclopedia, The Electro Importing Co.	4.95
Early Wireless by Anthony Constable, HB	15.95
Instructions for Operating Grebe Radios, 64 pages pocket size	4.95
Radiola Super - Hetrodyne 2nd Harmonic	4.95
Atwater Kent Instruction Book Vol. II, an exact color duplication of the original	8.95
Grebe Syncrophase Instruction Manual, 70 pages, an excellent reproduction	10.95
Official Radio Service Manual, 1930 Gernsback, 8½ X 11, 356 pages	19.95
The Story of Nipper and His Master's Voice, 64 pages, illustrated	6.50
Radio Collectors Pin (high metal relief and porcelain)	4.95
RASCO Radio Parts - Catalog #18, 145 pgs.	8.95
Radio Station Treasury 1900-1946 — 8½X11 176 pgs.	12.95
The Continuous Wave-Technology and American Radio, 1900-1932, by Hugh G. J. Aiken, 588 pgs.	20.95
Syntony & Spark, by Hugh G. J. Aiken, 368 pgs.	14.95
Television, The Story Scanning Disc Television — E. E. Taylor, 52 pgs.	4.95
Radio Speaker Encyclopedia, 8½X11, by Floyd A. Paul.....	11.90
Fifty Years of Radio, March 1938 issue of Hugo Gernsback's famous publication - 134 pgs..	14.95
Radio Manufacturers of the 1920's, Vol. 1, Very Large, by Alan Douglas	19.95
Radios — The Golden Age, 120 pgs. Full Color, by Phil Collins	14.95
David Sarnoff, biography, HB, 372 pages	14.95
Man of High Fidelity, Edwin H. Armstrong, PB, 272 pages.....	3.50
The Golden Age of Radio in the Home, HB John Stokes.....	NEW 24.95
Thomas A. Edison - A Stroke of Luck, PB, 562 pages.....	NEW 13.95
Saga opf the Vacuum Tube by Gerald Tyne, 494 pages	15.95
Tesla's Experiment, PB, 162 pages	8.95
Tesla Coil Secrets, PB	6.95
The Complete Talking Machine, 8½X11, 183 pages	NEW 15.95

All orders under \$35.00 enclose \$1.50 postage — Orders over \$35.00 shipped free.

WE HAVE DETERMINED THAT ALL OF THESE PUBLICATIONS ARE THE VERY BEST OFFSET QUALITY.

ALLOW 3-4 WEEKS FOR DELIVERY

ORDER FROM

Antique Radio Club of America, Inc.

Charleston West Virginia Area Chapter

4204 Thorn Apple Lane

Charleston, West Virginia 25313

Revised 2/1/89

ARCA-89 – June 1-3

Ramada Inn – Mystic, Conn.

Plan to attend...

THURSDAY – June 1

- Flea Market Begins at Sunup
Seminars Alan Douglas: *Radio Manufacturers of the Twenties*
Robert Merriam: *The Massie Wireless Telegraph System*
Contest Check-in, Viewing & Peoples' Choice Voting
Museum Tour . Visit to N.E. Museum of Wireless and Steam (in R.I.). 1908 wireless
(2pm-6pm) station plus equipment from spark to WWII. Museum's 25th-Year.

FRIDAY – June 2

- Flea Market Begins at Sunup
Contest Late Check-in, Judging & Viewing
Seminars Ray Moore: *Communications Receivers*
Ralph Williams: *The Story of a Museum: The Voice of the 20's Museum*
Mel Comer & Friends: *Restoration & Collecting Tips*
Banquet Evening Social Hour, Banquet & Awards
Meeting ARCA Membership Meeting following Banquet
Auction Pre-registration following meeting

SATURDAY – June 3

- Flea Market Sunup until start of auction
Auction Early morning: Old Equipment Auction
Museum Tour . 90-minute ferry ride to Long Island to the Voice of the 20's Museum,
(noon-7pm) with picnic. Museum contains 300 sets, 150 Atwater Kents: "bread-boards - boxes - bathtubs - cathedrals - tombstones - consoles."

Mystic, Conn., Area Highlights – Bring the Entire Family

A few of the possibilities for on-your-own or ARCA-89 tours:

- †Mystic Seaport: nation's largest (17 acres) maritime museum including period homes, shops and 19th-century tall ships
- †Marinelife Aquarium: dolphin/whale/sea-lion demonstration
- †Outlet Stores – †Shopping in the Town of Mystic
- Tour the USS Nautilus and WWII Subs. – U.S.C.G. Academy
- Historic Homes – Windjammer Cruises – Doll & Toy Museum
- † An ARCA 15-passenger van will loop hourly to these nearby attractions.

Plan to bring another collector to ARCA-89.

The 1989 Convention of the Antique Radio Club of America will be held at the Mystic, Conn., Ramada Inn (Exit 90 off of I-95) on June 1, 2, & 3, 1989. For a room reservation, phone the Ramada at (203) 536-4281 (or write the Ramada at P.O. Box 427, Mystic, CT 06355) and mention ARCA-89. To obtain more information on the convention, send 25¢ stamp to Bill & Jane Denk, 81 Steeplechase Road, Devon, PA 19333. ARCA members will/have received info. in the mail.